SECTION 621
STEEL GRID FLOORING

621.1-DESCRIPTION:

Steel grid flooring shall be of the open type or concrete filled type as shown on the Plans. The floor shall meet the requirements for the design of steel grid floors of the current issue of AASHTO Standard Specifications for Highway Bridges. Before fabrication or construction is undertaken, the Contractor shall submit complete shop and assembly details to the Engineer for approval, and no work shall be done until written approval of such details has been received.

621.2-MATERIALS:

621.2.1-Steel: All steel except as noted below shall conform to the requirements of ASTM A 36 and shall have a copper content of not less than 0.2 percent. Form strips used in concrete filled grid floors shall conform to the requirements of ASTM A 569.

621.2.2-Concrete: All concrete in filled steel grid floors shall conform to the requirements for Class A Concrete as specified in 601.

CONSTRUCTION METHODS

621.3-ARRANGEMENT OF SECTIONS:

All steel shall be straight and true to line and shall be assembled in a workmanlike manner.

Where the main elements are transverse to the centerline of roadway, the units generally shall be of such length as to extend over the full width of the roadway for roadways up to 40 ft. (12 meters), but in no case shall the units extend over less than four supports. Where joints are required, the ends of the main elements shall be welded at the joints over their full cross sectional area or otherwise connected to provide full continuity.

Where the main elements are parallel to the centerline of roadway, the sections shall be as long as practicable, but in no case shall the units extend over less than four supports. The ends of the abutting units shall be welded over their full cross sectional area or otherwise connected to provide full continuity in accordance with the design.

621.4-PROVISION OF CAMBER:

Provisions for camber shall be made as follows:

Rigid units that will not readily follow the roadway camber or the roadway crown, as the case may be, shall be cambered in the shop.

Longitudinal stringers shall be mill cambered or provided with varying

thickness bearing bars along their centerlines so that the completed floor, after dead load deflection, shall conform to the camber shown on the Plans.

Transverse stringers shall be mill cambered or provided with varying thickness bearing bars along their centerlines so that the completed floor shall conform to the crown shown on the Plans. These stringers shall also be placed normal to the crown of the roadway to provide even bearings for the grid sections.

Where bars are used, the design span length of the grid shall be governed by the width of the bar.

621.5-FIELD ASSEMBLY:

Areas of considerable size shall be assembled before the floor is welded to its supports. The main elements shall be made continuous, and sections shall be connected together along their edges by welding of bars or by other methods meeting with the approval of the Engineer.

621.6-CONNECTION TO SUPPORTS:

The floor shall be connected to its steel supports by welding. Provisions shall be made to provide bearing of all sections on the supporting members by shimming or added weldment. The location, length, and size of welds shall be as per the Manufacturer's recommendations or as shown on the Plans.

The ends of all the main steel members of the slab shall be securely fastened together at the sides of the roadway for the full length of the span by means of steel plates or angles welded to the ends of the main elements or by thoroughly encasing the ends with concrete where the main members are parallel to traffic; suitable side trim shall be used connecting the cross members.

621.7-WELDING:

All shop and field welding shall be done in accordance with 615.5.7.

Surfaces to be welded shall be free from paint, grease, loose scale, rust and other material that will prevent a proper weld. A thin coating of linseed oil, without pigment, need not be removed. Any clinkers or slag resulting from flame cutting or other causes shall be removed before welding.

621.8-CONCRETE FILLER:

Floor types with bottom flanges not in contact shall be provided with bottom forms of sheet metal to retain the concrete filler without excessive leakage. These strips shall fit tightly on the bottom flanges of the floor members but shall extend a minimum distance on the flanges in order that there shall be adequate bearing area of the slab on the support.

The concrete shall be Class A, mixed, placed, and cured in accordance with the requirements outlined in 601. The concrete shall be thoroughly compacted by vibrating the steel grid floor in a manner satisfactory to the Engineer.

621.9-PAINTING:

All painting shall conform to the provisions in section 688. The paint

system shall be specified in the contract documents.

621.10-METHOD OF MEASUREMENT:

Steel grid flooring will be measured by the number of square feet (meters) complete in place, not including Class A concrete. The volume of Class A Concrete will be computed on the basis of a slab equal to the thickness of the steel grid flooring as called for on the Plans, minus the volume of metal in the steel grid flooring. The volume of metal will be determined from the weight of the steel grid flooring as listed by the fabricator. The cost of construction of roadway drains, scuppers, downspouts, etc., where specified, shall be included in the price bid for Class A Concrete. The expansion devices will be included in the item of structural steel.

621.11-BASIS OF PAYMENT:

The quantities, determined as provided above, will be paid for at the contract unit price bid for the items listed below, which price and payment shall be full compensation for furnishing all the materials and doing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies, and incidentals necessary to complete the work; except that Class A concrete will be paid for under Item 601001-*.

621.12-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
621001-*	STEEL GRID FLOORING, FILLED TYPE	FOOT (METER)
621002-*	STEEL GRID FLOORING, OPEN TYPE	FOOT (METER)

* Sequence number

SECTION 622
TIMBER BRIDGE STRUCTURES

622.1 - GENERAL:

622.1.1 - This work shall consist of the fabrication and erection or fabrication and delivery of timber bridge structures in accordance with these specifications and in reasonably close conformity with the lines, grades, dimensions and locations shown on the Plans. All work shall be done and all materials shall meet the requirements of this specification and plan notes.

622.1.2 - These specifications apply to the following types of timber bridge structures:

Type A: Longitudinal Stress-Laminated Plank Deck

The superstructure is formed by longitudinal vertical sawn lumber laminations which are clamped together on their wide faces by high-strength steel stressing thread bars through holes in the laminations. Stressing pressure is transferred to the timber by bearing plates located along the outer laminations at the edge of the deck and develops sufficient friction between the laminations